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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/578,578

05/05/2006

Andre Sloth Eriksen

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FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER
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EXAMINER

WALBERG, TERESA J

ART UNIT

PAPER NUMBER

3744

MAIL DATE

DELIVERY MODE

08/18/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/578,578	Applicant(s) ERIKSEN, ANDRE SLOTH	
	Examiner Teresa J. Walberg	Art Unit 3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 July 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 70-89,95 and 97-112 is/are pending in the application.
- 4a) Of the above claim(s) 89 and 95 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 70-88 and 97-112 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 May 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/25/08,5/1/08</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “means to detect an annular position of the pump rotor” and the pump rotor being operatively coupled to an AC motor, the AC motor being powered by a DC power supply of the computer system must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Figures 1-3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g).

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

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the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 70-73, 75-84, 87, 101, and 102 are rejected under 35 U.S.C. 103(a) as being unpatentable over Batchelder (6,019,165) in view of Chu et al (2003/0056939) and further in view of Alvaro (6,114,827).

Batchelder discloses a cooling system for a computer system processing unit as claimed including an integrated element and a heat radiator (Fig. 2), the integrated element including a heat exchanging interface (at 52), a reservoir (at rotor 54), and a pump (at 56), the reservoir being adapted to receive a cooling liquid from an inlet and pass the cooling liquid to an outlet (Fig. 2), the reservoir including a plurality of channels to direct flow of cooling liquid across the heat exchanging surface, the heat radiator (at 28) being connected between the outlet and the inlet and being adapted to exhaust heat from the cooling liquid, the heat exchanging interface being adapted to provide thermal contact between the processing unit and the cooling liquid (Fig. 2), such that heat is dissipated from the processing unit to the cooling liquid as the cooling liquid passes across the heat exchanging interface, and the pump (56) being adapted to pump cooling

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liquid through the reservoir and the heat radiator, the pump comprising an impeller (56) magnetically connected with a pump rotor (54), the impeller (54) being submerged in the cooling liquid and being adapted to communicate the cooling liquid into the plurality of channels (Fig. 2), the impeller disposed in a recess sized in relation to a diameter of the impeller (54) and including a recess inlet and outlet (Fig. 2), the impeller adapted to pass the cooling liquid from the recess inlet, through the recess outlet and into the plurality of channels (Fig. 2), the plurality of channels being integral to the inner surface of the heat exchanging interface (52), the inlet, outlet and pump being disposed proximate the heat exchanging interface and being structurally adapted to generate a turbulent flow of cooling liquid across the heat exchanging interface (Fig. 2), the driving means being further adapted to drive a fan (34) associated with the reservoir and/or the heat radiator.

Batchelder differs from the claimed device in that it does not show the impeller being mechanically integrated with the pump rotor, with the pump being disposed within the reservoir and it does not disclose means to detect an angular position of the pump rotor.

Chu et al disclose a cooling system for a computer system (para. 0010) including an impeller (26) mechanically integrated with a pump rotor (16), with the pump being disposed within the reservoir (Fig. 1).

It would have been obvious to one of ordinary skill in the art to substitute a mechanically integrated impeller and pump rotor with the pump within the

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reservoir for the magnetically connected impeller and pump rotor with pump disposed outside of the reservoir of Batchelder, because the substitution of one known element for another would have yielded predictable results to one of ordinary skill in the art at the time of the invention (*KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (2007)).

Batchelder and Chu et al do not disclose means to detect an angular position of the pump rotor. Alvaro discloses means to detect an angular position of a rotor (see abstract). It would have been obvious in view of Alvaro to provide means to detect an angular position of the pump rotor in the cooling system of Batchelder and Chu et al, the motivation being to prevent damage to the motor as taught by Alvaro.

4. Claim 74 is rejected under 35 U.S.C. 103(a) as being unpatentable over Batchelder (6,019,165) in view of Chu et al (2003/0056939) and Alvaro (6,114,827) and further in view of Morris et al (6,580,610).

Batchelder in view of Chu et al and Alvaro disclose a cooling system having the claimed structure with the exception of the pump being disposed at least partially outside the reservoir.

Morris et al disclose a cooling system with a pump located outside a reservoir. See Fig. 2.

It would have been obvious to one of ordinary skill in the art to position the pump of Batchelder in view of Chu et al and Alvaro at least partially outside the

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reservoir, the motivation being to enable easier repair or replacement of the pump.

5. Claims 85, 86, and 88 are rejected under 35 U.S.C. 103(a) as being unpatentable over Batchelder (6,019,165) in view of Chu et al (2003/0056939) and Alvaro (6,114,827) and further in view of Bingler (6,668,911).

Batchelder in view of Chu et al and Alvaro disclose a cooling system having the claimed structure with the exception of the interface comprising a surface of the processing unit disposed in direct contact with the cooling liquid, or an element adapted to be separable from the reservoir.

Bingler discloses an interface comprising a surface of a heat source (1) disposed in direct contact with the cooling liquid (Fig. 3), and an element (the heat source 1) adapted to be separable from the reservoir. See Fig. 3.

It would have been obvious to one of ordinary skill in the art in view of Bingler to provide the processing unit of Batchelder in view of Chu et al and Alvaro in direct contact with the liquid in the reservoir, the motivation being increase the amount of heat that could be removed.

6. Claims 97-100 and 103-112 are rejected under 35 U.S.C. 103(a) as being unpatentable over Batchelder (6,019,165) in view of Chu et al (2003/0056939) and Alvaro (6,114,827) and further in view of Hsieh (6,170,563).

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Batchelder in view of Chu et al and Alvaro disclose a cooling system having the claimed structure with the exception of the impeller having curved blades which would be more efficient when rotated in a particular direction, the pump rotor being powered by the computer power supply, and the rotor using an AC motor powered by a DC power supply.

It is conventional in the computer cooling art to use AC motors powered by DC power supplies. It would have been obvious to one of ordinary skill in the art to use an AC motor powered by a DC power supply in the cooling system of Batchelder in view of Chu et al and Alvaro to enable battery operation of a computer.

Hsieh discloses a notebook computer cooling system including an impeller having curved blades (410 in Fig. 2) which would be more efficient when rotated in a particular direction and the drive motor for the cooling system (Fig. 2) being powered by the computer power supply (col. 2, lines 45-50).

It would have been obvious to one of ordinary skill in the art in view of Hsieh to provide the cooling system of Batchelder in view of Chu et al and Alvaro with an impeller having curved blades, the motivation being to enable a more compact flow path, and to provide power to the rotor from the computer power supply, the motivation being to enable use of the cooling system when the computer is not plugged in.

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7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kunz (DE 19534 423) is cited to show a rotor with a position detector.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Teresa J. Walberg whose telephone number is 571-272-4790. The examiner can normally be reached on M-F 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Teresa J. Walberg/
Primary Examiner, Art Unit 3744

/TW/